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In the Supreme Court of the United States

FEDERAL ENERGY REGULATORY COMMISSION,
Petitioner,

v.

ELECTRIC POWER SUPPLY ASSOCIATION, ET AL.,
Respondents.

ENERNOC, INC., ET AL.,
Petitioners,

v.

ELECTRIC POWER SUPPLY ASSOCIATION, ET AL.,
Respondents.

On Writs of Certiorari to the United States Court of Appeals for the District of Columbia Circuit

BRIEF OF *AMICI CURIAE* NUCLEAR ENERGY INSTITUTE AND AMERICA'S NATURAL GAS ALLIANCE IN SUPPORT OF THE RESPONDENTS

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Amici curiae, in their individual capacities, respectfully submit this brief in support of Respondents on the second question presented for this Court's review: Whether Order 745 is arbitrary and capricious. 135 S. Ct. 2049 (2015).

INTEREST OF *AMICI CURIAE*[1]

Amici curiae Nuclear Energy Institute and America's Natural Gas Alliance are trade organizations that represent the nuclear-power and gas-producing industries, respectively. *Amici* join together in this brief because they share an overriding interest in ensuring that the Federal Energy Regulatory Commission ("FERC") maintains just and reasonable rates in the wholesale electricity market.

NUCLEAR ENERGY INSTITUTE ("NEI")

NEI's mission is to foster the beneficial uses of nuclear technology and to communicate accurate information about the importance of nuclear energy and technology. NEI is responsible for developing and advocating on legal, regulatory and policy matters affecting the nuclear energy industry. NEI has more than 350 members, spread across 17 countries, and they include all the companies licensed to operate commercial nuclear power plants in the United States,

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[1] Letters reflecting the parties' consent to the filing of this brief have been filed with the Clerk of Court pursuant to Supreme Court Rule 37.3(a). Pursuant to Supreme Court Rule 37.6, counsel for *amici* represent that no counsel for a party authored any part of this brief, and no person, other than *amici* and their counsel, made any monetary contribution to the preparation or submission of this brief.

as well as nuclear plant designers, major architectural and engineering firms, entities that process nuclear fuel, and other organizations involved in the nuclear power industry.

Preserving existing nuclear generation is essential if the United States is to maintain a highly reliable electric grid, retain a diversified energy portfolio to manage inherent production cost risk, and substantially and sustainably reduce carbon emissions in the face of a growing economy. Preserving existing nuclear generation and developing future generation requires full valuation of the benefits and services nuclear generation provides. That is not happening in the current wholesale power market and existing market flaws are already distorting wholesale prices.[2] The failure of the market to value nuclear benefits fully has resulted in uneconomic retirement and replacement of existing, cost-effective nuclear generation sources, and that situation would only grow

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[2] NEI has noted to FERC these concerns with the wholesale power markets. *See, e.g.*, Letter from Joint Trade Associations to FERC on Price Formation Reform Principles (Mar. 6, 2015), http://www.nei.org/CorporateSite/media/filefolder/Policy/Market/Joint-Trade-Assns-Letter-to-FERC-on-Price-Formation-Principles.pdf?ext=.pdf; Letter from NEI, Edison Electric Institute ("EEI"), and Electric Power Supply Association ("EPSA") to Cheryl LaFleur, Chairman, FERC, in Docket Number AD14-8-000 (Technical Conference on Winter 2013-2014 Operations and Market Performance in Regional Transmission Organizations and Independent System Operators) (Apr. 23, 2014), http://www.eei.org/issuesandpolicy/generation/Documents/Joint_EPSA_NEI_EEI_Letter_042314.pdf; NEI, *Nuclear Plant Shutdowns Reveal Market Problems* (Nov. 17, 2014), http://www.nei.org/News-Media/News/News-Archives/Nuclear-Plant-Shutdowns-Reveal-Market-Problems.

worse if Order 745 were to be implemented. *Amicus* NEI thus has a strong interest in the rejection of this arbitrary and capricious ruling by FERC.

AMERICA'S NATURAL GAS ALLIANCE ("ANGA")

Amicus ANGA represents America's leading independent natural gas exploration and production companies. ANGA works with industry, government, and customer stakeholders to ensure the continued availability of natural gas and to promote the increased use of this abundant domestic resource for a clean and secure energy future. Representing both energy producers and consumers, ANGA has a keen interest in the production of electricity from clean-burning, affordable natural gas. ANGA has participated in state and federal proceedings to insure that wholesale power prices fully track market fundamentals and properly compensate sellers.[3]

Efficient deployment of natural gas generation depends on the full valuation of the benefits and services that it provides. Natural gas-fired generators currently provide almost a quarter of the nation's

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[3] *See, e.g.*, Price Formation in Energy and Ancillary Services Markets Operated by Regional Transmission Organizations and Independent Systems Operators, FERC Docket No. AD14-14, comments of ANGA (Mar. 6, 2015); Letter from Amy Farrell, Vice President, Market Development, America's Natural Gas Alliance, to Howard Schneider, Esq., Chair, Board of Managers, PJM Interconnection, LLC (Nov. 11, 2014) http://anga.us/media/testimony/D363FD0E-5056-9F69-D4A648C9F6086D00/files/Final%20PJM%20Capacity%20Assurance%20Proposal%20111114.pdf.

electricity, and abundant domestic supplies of natural gas are available to replace baseload generation from other fossil fuels that emit higher levels of carbon and criteria pollutants. Natural gas generators also have the ability to rapidly increase and decrease electricity production (i.e., fast ramping), which is needed to balance intermittent energy production from renewable generators such as solar and wind. Because Order 745 would unlawfully overcompensate reductions in retail electricity consumption and would impede economically efficient deployment of natural gas, ANGA, too, has a strong interest in this Court affirming the D.C. Circuit's ruling rejecting Order 745 as arbitrary and capricious.

SUMMARY OF ARGUMENT

The court below correctly held that, even if FERC had statutory authority to issue Order 745, the Order would "still fail because it was arbitrary and capricious." U.S.Pet.App.15a.

The Federal Power Act ("FPA") requires that all wholesale rates for electric service be just and reasonable, and not unduly discriminatory or preferential. 16 U.S.C. §§ 824e(a), 824d(b). Under the Administrative Procedure Act ("APA"), FERC must fully consider the evidence before it and must fully engage contrary arguments. Order 745 fails to meet these requirements.

I. As an initial matter, Order 745 is arbitrary and capricious precisely for the reason identified by the D.C. Circuit: "FERC failed to properly consider—and engage—Commissioner Moeller's reasonable (and persuasive) arguments, reiterating the concerns of

Petitioners and other parties, that Order 745 will result in unjust and discriminatory rates." U.S.Pet.App. 15a.

II. In addition, FERC's order should also be rejected as unlawful, arbitrary and capricious because it does not justify the substantial adverse effects that Order 745 could have on the diversity of the country's energy supply portfolio to the detriment of reliability and the environment. The proposed overpayment to retail customers would have an adverse and varying impact on all generators, including those who produce electricity via nuclear energy and natural gas. The result would be a compensation scheme that, contrary to the FPA's requirements, is unjust, unreasonable, and unduly discriminatory.

Focusing first on the nuclear case, premature retirement of nuclear facilities has the potential to compromise the diverse mix of supply resources that is important to maintaining long-term reliability and security while achieving environmental goals. There are already serious defects in policies and practices governing how electricity is priced and how generators are compensated. These factors have already caused the premature closures of some nuclear plants. If Order 745 were implemented, its preferentially high payments to retail customers for their reduced electricity consumption would artificially suppress prices paid to all conventional generators, further exacerbating this situation for nuclear generators. Premature nuclear plant retirements resulting from the failure of markets to properly value nuclear power have adverse, long-term implications not only for the industry itself, but for the public at large. In

particular, such early nuclear plant closings (1) eliminate carbon-free electricity that is needed if the United States is to meet its environmental objectives, (2) reduce the availability of a reliable power source that is available around the clock with a guaranteed on-site fuel supply, (3) compromise the fuel and technology diversity that is the bedrock of a robust, resilient and cost-effective electric supply system, (4) eliminate high-quality nuclear power jobs, and (5) adversely impact the nation's tax base.

Similarly, the failure of the markets to value natural gas generation fairly for the services it provides depresses the amount of generation from natural gas and, in turn, harms the natural gas industry. In particular, suppression of prices reduces natural gas generation that (1) provides emission reduction benefits over other fossil fuel generation sources, (2) provides reliable baseload power, (3) provides flexibility and fast ramping to balance intermittent resources and stabilize the grid, and (4) creates demand for a domestically-produced fuel which contributes to our nation's gross domestic product, creates high-paying jobs, and provides significant federal, state and local tax revenues. The nation's abundant supplies of clean-burning natural gas cannot be fully utilized in the absence of wholesale prices that properly reflect fundamental market forces.

In promulgating Order 745, FERC failed to acknowledge, explain, or justify these harms to the nation's current and varied generation sources, including nuclear and natural gas. These failures provide independent grounds for affirming the D.C.

Circuit's conclusion that Order 745 is arbitrary and capricious.

ARGUMENT

When it ordered that retail consumers be paid full locational marginal price ("LMP") for reductions to their energy consumption, FERC violated the FPA and acted arbitrarily and capriciously.

I. FERC'S FAILURE TO ENGAGE THE SERIOUS OBJECTIONS TO ITS APPROACH RENDERS ORDER 745 ARBITRARY AND CAPRICIOUS

The FPA requires FERC to set wholesale power rates at levels that are just and reasonable, and prohibits rates that are "unduly discriminatory or preferential." 16 U.S.C. §§ 824e(a), 824d(b). Rates that are not consistent with these provisions are "unlawful." 16 U.S.C. § 824d(b).

Because the "statutory requirement that rates be 'just and reasonable'" eludes "precise judicial definition," FERC's ratemaking decisions have traditionally received "great deference." *Morgan Stanley Capital Grp. Inc. v. Public Util. Dist. No. 1*, 554 U.S. 527, 532 (2008). This deference, however, is not without its limits. Under the APA, courts must reject agency rulemaking whenever it is "arbitrary, capricious, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). This standard requires FERC to comply with the statutory requirements, and to "examine the relevant data and articulate a satisfactory explanation" for its rules. *Motor Vehicle Mfrs. Ass'n of the U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). Before adopting its preferential rate treatment for demand response

resources, FERC was thus obligated to fully "engage the arguments raised before it," *NorAm Gas Transmission Co. v. FERC*, 148 F.3d 1158, 1165 (D.C. Cir. 1998) (quoting *K N Energy, Inc. v. FERC*, 968 F.2d 1295, 1303 (D.C. Cir. 1992)), and to provide a reasoned response to the salient objections to its approach, including the points raised by its dissenting commissioner. *See Am. Gas Ass'n v. FERC*, 593 F.3d 14, 19-20 (D.C. Cir. 2010).

The D.C. Circuit correctly concluded that FERC failed to satisfy this fundamental obligation. In briefs to this Court and in the agency proceedings below, numerous parties and commenters explained why payments in the wholesale market at the full LMP to those who reduce consumption for that reduction would overcompensate those customers and yield economically inefficient results.[4] Unlike wholesale generators, demand response resources would, under Order 745, realize both full LMP *plus* their savings from purchasing less energy at retail (referred to as "G"). By contrast, generation resources, like nuclear and gas-fired generation, would receive only LMP, and yet would still be "incomparably saddled with generation costs" that demand response resources would never have to incur. U.S.Pet.App.16a.

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[4] *See* EPSA Br.49-60; *see also* U.S.Pet.App.73a n.57 (citing comments of: APPA; AEP; The Brattle Group; Calpine; ConEd; Consumers Energy; CPG; Detroit Edison; Direct Energy; Dominion; Duke Energy; Edison Mission; EEI; EPSA; Exelon; FTC; GDF; NYISO on behalf of the ISO RTO Council; ICC; IPPNY; Indicated New York TOs; IPA; ISO-NE; Midwest TDUs; Mirant; Midwest ISO TOs; NEPGA; NYISO; ODEC; OMS; PJM; PJM IMM; P3; Potomac Economics; PG&E; Ohio Commission; Robert L. Borlick; Roy Shanker; and RRI Energy).

In his dissent, FERC Commissioner Moeller recognized these concerns and concluded that paying full LMP for reduced energy consumption would be unduly preferential and would not result in just and reasonable rates. U.S.Pet.App.156a, 172a. In setting the wholesale power payments to these customers, Commissioner Moeller explained that, to accomplish its professed goals of balancing supply and demand, FERC needed to factor in the savings realized by customers on their retail bills (i.e., "G") absent a specific showing that a higher rate was justified under the FPA. U.S.Pet.App.172a. Commissioner Moeller thus noted that FERC should have adopted a demand response rate referred to as LMP minus G (or "LMP-G"). U.S.Pet.App.172a.

Notwithstanding the cogent analysis offered by Commissioner Moeller and others,[5] FERC chose to require that retail customers be paid in the wholesale market full LMP for their reduced consumption without regard to the actual circumstances they or conventional generators were facing at the time. FERC acknowledged that this favorable rate treatment for demand response was intended to lower clearing prices in the wholesale market. *See* U.S.Pet.App.56a (Order 745 will result in an "overall benefit from the reduced LMP"). However, while FERC explained its motivation for paying a preferential rate to demand response, it completely failed to engage Commissioner Moeller's dissenting views, and provided no explanation as to

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[5] *See* U.S.Pet.App.156a-172a (Commissioner Moeller's analysis); JA80-180 (EPSA Comments); JA181-219 (William W. Hogan analysis, "Implications for Consumers of [Order 745's] Proposal to Pay the LMP for All Demand Response"); *see also supra* n.4.

why paying retail customers the full LMP in the wholesale market was consistent with its objective of balancing supply and demand. *See* U.S.Pet.App.15a. For that reason alone, FERC acted unlawfully, arbitrarily and capriciously, and the D.C. Circuit correctly concluded that Order 745 should be vacated.

II. ORDER 745 IS ALSO UNLAWFUL, ARBITRARY AND CAPRICIOUS BECAUSE IT FAILS TO JUSTIFY THE ADVERSE IMPACT ITS PREFERENTIAL RATES WOULD HAVE ON GENERATION RESOURCES, PARTICULARLY THE NUCLEAR AND NATURAL GAS INDUSTRIES

FERC's failure to provide any meaningful response to the serious objections to its approach, as reflected in Commissioner Moeller's dissent, in itself provides a sufficient basis for vacating Order 745. There is, however, also another reason why Order 745 should be rejected: the Order fails to acknowledge and to justify the adverse impact its unduly preferential wholesale rates for retail demand response would have on our nation's diverse supply resources, including nuclear power generation and gas-fired resources.[6]

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[6] Those adverse impacts, which will occur as a result of Order 745 depressing wholesale market prices, *see infra* Part II.A., were brought to FERC's attention preceding the issuance of Order 745, and some of these impacts also were referenced by Commissioner Moeller in his dissent. *See, e.g.*, Demand Response Compensation in Organized Wholesale Energy Markets, FERC Docket No. RM10-17, comments of EEI 11-13 (May 13, 2010) (Order 745 would have "dysfunctional impacts ... on long-term wholesale market prices including the investment necessary to maintain existing generation and build new power plants"); JA109-510 (comments of

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ISO New England noting that depressed LMPs below efficient market clearing levels, that would result from Order 745 would reduce incentive to invest in generation resources); Demand Response Compensation in Organized Wholesale Energy Markets, FERC Docket No. RM10-17, comments of Am. Elec. Power Serv. Corp. (May 13, 2010) (consumers will suffer in the long-term when demand growth and plant retirements necessitate the entry of additional generation); U.S.Pet.App.170a (dissenting Commissioner Moeller stating "[t]he long-term costs of allowing demand resources to receive preferential compensation will manifest themselves in various ways ... at the wholesale level, the corrosive effect of overcompensating demand resources over time will come at the expense of other resources, particularly generation resources that will have less to invest in maintaining existing facilities and financing new facilities"). In Order 745, FERC ignored these arguments entirely. *See* U.S.Pet.App.89a-104a. Parties again raised this issue before FERC in requests for rehearing. *See, e.g.*, JA1097 (FERC "has not given due consideration to the long-term effects of [Order 745]" and "consumers may benefit from lower market energy prices in the near-term, but will suffer in the long-term when demand growth and plant retirements necessitate the entry of additional generation"); Demand Response Compensation in Organized Wholesale Energy Markets, FERC Docket No. RM10-17, Request for Reh'g of Competitive Power Supplier Ass'ns 43 (Apr. 14, 2011) ("[B]y suppressing LMPs below the efficient levels, [Order 745] will distort investment incentives and harm reliability in the long-run by encouraging existing supply to exit and discouraging new entry. [FERC] did not even begin to respond to these arguments" (footnote omitted)). Yet, in its Order on Rehearing, FERC summarized these industry-wide concerns in one sentence and briefly stated that it rejected the arguments because both demand and generation resources would receive compensation at LMP and because demand response resources would increase supply-side resource competition. U.S.Pet.App.221a. This explanation does not address the concerns raised.

A. Preferred Prices For Demand Response Would Threaten the Diverse Supply Portfolio by Depressing Market Clearing Prices Paid To All Supply Resources

Under the FPA, all resources that furnish wholesale power, including nuclear and gas-fired resources, should receive "just and reasonable" wholesale rates that fully value the services they provide. FERC has a statutory obligation to set rates that "are neither 'less than compensatory' to producers nor 'excessive' to consumers."[7] The wholesale rates set by Order 745 would violate that requirement. By over-paying demand response, Order 745 would artificially inflate demand response in the market, which would artificially suppress wholesale prices to the detriment of conventional producers such as nuclear and natural-gas fired generators.

Respondents fully describe in their brief to this Court why requiring that demand response be paid in full LMP is unlawful, arbitrary and capricious – it abruptly departs from earlier FERC findings and does not further FERC's professed policy goals.[8] *Amici* agree, and discuss below the practical implications on their industries of overpaying demand response.

Generating resources will be impacted in two ways from the unjust and unduly discriminatory price suppression effects that results from discriminatory over-compensation of demand response. First, the

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[7] U.S.Pet.App.166a n.24 (citing *Farmers Union Cent. Exch. v. FERC*, 734 F.2d 1486 (D.C. Cir. 1984)).

[8] EPSA Br.49-60.

wholesale energy prices will be reduced as a result of paying retail customers at the preferential LMP rate, rather than the lower, non-preferential LMP-G rate.[9] As explained more fully in the dissent below[10] and in Respondents' brief to this Court,[11] if LMP is paid to a retail customer for reducing consumption, one megawatt ("MW") of additional generated electricity would be worth less to that retail customer than reducing its consumption of electricity by one MW. That lower consumption, in turn, would reduce LMPs paid to electricity generators – whatever the means of their power production – that are serving the remaining load. To be clear, the price suppression of concern to *amici* is the suppression that results from arbitrarily inflated demand response as a result of the preferentially high payments that Order 745 would require. That inflated demand response would displace

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[9] LMP, in simple terms, is the price required to purchase the next increment of energy needed to maintain reliability. In the competitive wholesale electricity market, the supply resources with the lowest incremental costs are dispatched (i.e., turned on) first, with progressively higher incremental cost resources that can satisfy load at any particular location on the system being dispatched as the load grows. A uniform price is paid to resources that are dispatched in this merit order, with that purchase price referred to as the "clearing price." Under this least-price dispatch process, clearing prices generally increase as load increases and fall as load falls. By paying demand response resources a premium to reduce load, Order 745 would assure that the resulting energy clearing prices are also reduced.

[10] U.S.Pet.App.156a-172a.

[11] EPSA Br.50-54.

cost-effective supply resources, which otherwise would and should have set the LMP

The second adverse impact on generating resources would be in the wholesale capacity markets. Centralized wholesale capacity markets are necessary to help ensure that there are enough resources available to keep the lights on during times of peak demand with some resources held in reserve. The capacity market seeks to accomplish this by providing an additional stream of market revenues for energy and other ancillary services that, together with other wholesale market revenues, provide "an adequate opportunity for all resources to recover both their variable and fixed costs over time."[12] The capacity market revenue stream should be sufficient to replace the "missing money" resulting from energy prices that fail to reflect the full value of services provided.[13]

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[12] Centralized Capacity Market Design Elements, FERC Docket No. AD13-7, FERC Staff Report 2, (Aug. 23, 2013), http://www.ferc.gov/CalendarFiles/20130826142258-Staff%20Paper.pdf. The need for revenues in addition to energy revenues has been referred to as the "missing money" problem because the energy market alone does not produce enough revenues for a resource that is needed for reliability in order to cover that resource's variable and fixed costs over time. IHS Energy, *The Value of US Power Supply Diversity* 28-29 (July 2014), http://www.nei.org/Master-Document-Folder/Backgrounders.Reports-And-Studies/IHS-Energy-Study-The-Value-of-US-Power-Supply-Dive (follow "Download" hyperlink) (describing *inter alia* how the missing money problem can threaten power generation diversity).

[13] *See supra* n.12; *see also* Joint Technical Conference on New York Markets & Infrastructure, FERC Docket No. AD14-18, Written Statement of Dr. David Patton, Market Monitoring Unit for the New York Independent System Operator 3-4 (Nov. 5, 2014),

FERC recognized that the increase in demand response resulting from paying LMP rather than LMP-G "would tend to drive capacity prices down," but failed to explain why such an impact is justified.[14] Any drop in capacity revenues resulting from artificially inflated demand response would compound the revenue reduction from artificially depressed energy prices.

In short, if the rate structure set forth in Order 745 has the effect intended by FERC, the preferential rate paid for demand response would artificially inflate demand response and artificially suppress prices in the wholesale energy and capacity markets below levels that reflect sound market fundamentals. As a result, the revenues received by nuclear power and natural gas-fired generators in the wholesale power market would be artificially depressed.

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http://www.ferc.gov/CalendarFiles/20141119133149-D%20Patton%20Written%20Statement_11-5-14.pdf; Technical Conference on Centralized Capacity Markets in Regional Transmission Organizations and Independent System Operators, FERC Docket No. AD13-7, David B. Patton, Ph.D., President, Potomac Economics, Resource Adequacy in the Wholesale Electricity Markets: Principles and Lessons Learned (Sept. 25, 2013), http://www.ferc.gov/CalendarFiles/20130925092436-Patton,%20Potomac%20Economics.pdf.

[14] U.S.Pet.App.119a n.167. Others argued that the premature exit of otherwise cost-effective resources resulting from the energy price suppression could result in higher capacity prices, a fact also not addressed by the FERC. *See, e.g.*, JA509.

B. Suppression Of Wholesale Market Clearing Prices Could Have Serious Repercussions For The Nuclear And Natural Gas Industries

Both the nuclear and natural gas industries depend on wholesale power prices that reflect fundamental market forces. In the case of nuclear power, suppressed wholesale market prices are threatening continued operation of some of the plants and Order 745 would increase that threat. In the case of natural gas, price suppression from Order 745 would impede the ability to realize the full potential of this abundant, domestic energy supply. The U.S. electricity supply and delivery system is already challenged, particularly during extreme weather. Nuclear and natural gas are essential to meet those challenges. A wholesale power market that artificially suppresses energy could have long-term detrimental impacts on the generation fleet, grid stability and reliability, and would harm consumers and the public interest.

1. Current market prices, even without suppression from demand response subsidies, are already challenging the viability of certain nuclear power plants, and inappropriate suppression of market prices will further compound those challenges

Nuclear power depends on wholesale energy and capacity revenues to cover its costs. Because of known defects in market design, policies and practices, the competitive markets do not provide adequate compensation to generators. FERC is aware of these defects and has held technical conferences over the

past eighteen months on capacity market design and price formation in energy markets.[15] These defects, by themselves, are well-documented and already compromise the viability of certain generating assets, including certain nuclear plants, thereby reducing the long-term reliability and diversity of the supply portfolio.[16] Order 745 would make that bad situation even worse, by further eroding the revenue stream to generating plants and compromising the price signal sent to generators. The benefits to the nation of nuclear power are overwhelming and are threatened by actions like Order 745 that would further distort the power market and compound the challenges facing nuclear power plants.

As to the benefits of nuclear power, U.S. nuclear power plants generate approximately 20 percent of the nation's electricity, at power plants that operate safely,

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[15] *See, e.g.*, Technical Conference on Centralized Capacity Markets in Regional Transmission Organizations and Independent System Operators, FERC Docket No. AD13-7 (Sept. 25, 2013); Price Formation in Energy and Ancillary Services Markets Operated by Regional Transmission Organizations and Independent System Operators, FERC Docket No. AD14-14.

[16] *See* Technical Conference on Centralized Capacity Markets in Regional Transmission Organizations and Independent System Operators, FERC Docket No. AD13-7 (Sept. 25, 2013); Price Formation in Energy and Ancillary Services Markets Operated by Regional Transmission Organizations and Independent System Operators, FERC Docket No. AD14-14; IHS Energy, *The Value of US Power Supply Diversity* 28-29 (July 2014), http://www.nei.org/Master-Document-Folder/Backgrounders/Reports-And-Studies/IHS-Energy-Study-The-Value-of-US-Power-Supply-Dive (follow "Download" hyperlink).

reliably, and around the clock,[17] 18 to 24 months at a time between refueling, with annual capacity factors that routinely exceed 90 percent.[18] Nuclear power plants have fuel on-site and are available to run when needed. For example, while the frigid temperatures produced by the 2013/2014 Polar Vortex created a high demand and impacted the production of electricity from all generation sources, as found by the North American Electric Reliability Corporation, which is responsible for assuring the reliability of the entire electric grid,

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[17] This is also an important distinction between generation resources, like nuclear power plants, and demand response – nuclear power plants generally can produce energy whenever they are needed, whereas demand response providers typically can only be called upon to reduce load a limited number of times and for short durations.

[18] *See* FERC Examination of the Environmental Protection Agency's Clean Power Plan, FERC Docket No. AD15-4, comments of NEI 2, 4 (Feb. 23, 2015) (nuclear power plants "provide approximately 20 percent of America's electricity, and 63 percent of America's carbon-free electricity"). A plant's capacity factor during a period of time, in simple terms, is the ratio of a power plant's actual production to its potential production if it operated at its full rating over the same time. Other forms of power, such as solar and wind, have capacity factors that are half or less than nuclear's capacity factor. *See* U.S. Energy Information Administration, Electric Power Monthly, Table 6.7.B. Capacity Factors for Utility Scale Generators Not Primarily Using Fossil Fuels, January 2013-June 2015, http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_6_07_b (last visited Sept. 3, 2015).

"the polar vortex had the least impact on nuclear plants."[19]

Nuclear power plants also provide more than 60 percent of the nation's carbon-free electricity – three times more carbon-free electricity than hydropower, and five times more than wind energy.[20] Without nuclear plants operating in 30 states, carbon emissions from the U.S. electric sector would be 25 percent higher than they are currently.[21]

Current low wholesale prices that do not reflect these highly favorable nuclear attributes have already led to the premature closure of several nuclear power facilities in the past several years, including facilities

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[19] North American Electric Reliability Corporation, *Polar Vortex Review* 13, App. A at 32 (Sept. 2014), http://www.nerc.com/pa/rrm/January%202014%20Polar%20Vortex%20Review/Polar_Vortex_Review_29_Sept_2014_Final.pdf (of the three major fuel types, "the polar vortex had the least impact on nuclear plants."); *see also* Midcontinent Independent System Operator, Inc., *2013-2014 MISO Cold Weather Operations Report* 24 (Nov. 2014), https://www.misoenergy.org/Library/Repository/Report/Seasonal%20Market%20Assessments/2013-2014%20Cold%20Weather%20Operations%20Report.pdf (during the polar vortex, "the outage rate for nuclear units was only 8% and provided the reliability when the system needs them the most").

[20] FERC Examination of the Environmental Protection Agency's Clean Power Plan, FERC Docket No. AD15-4, comments of NEI 4 (Feb. 23, 2015).

[21] *Id.*

in Wisconsin and Vermont.[22] Premature closure of other facilities may soon follow.[23]

Additional premature closures of nuclear plants would have serious negative consequences. Viable and sustainable nuclear generation is essential to meet goals of carbon abatement and energy diversity.[24] If nuclear plants close, renewable generation will be available to replace some of the lost megawatts, but not

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[22] FERC Examination of the Environmental Protection Agency's Clean Power Plan, FERC Docket No. AD15-4, comments of NEI (Feb. 23, 2015); Nuclear Matters, Fact Sheet on Challenges Facing Nuclear Energy Plants (June 2014), http://www.nuclearmatters.com/resources/fact-sheets/document/7-Nuclear-Matters-Challenges-Facing-Nuclear-Energy-Plants.pdf.

[23] *See supra* note 22; Thomas Overton, *U.S. Faces Wave of Premature Nuclear Retirements*, Power (Jan. 14, 2015), http://www.powermag.com/u-s-faces-wave-of-premature-nuclear-retirements/. Efforts to recover missing revenues in the capacity market in the mid-Atlantic region, at least for three nuclear power generators owned by an NEI member, were unsuccessful when those generators were not selected in the auction as capacity resources for the region. Thomas Overton, *Three of Exelon's Nuke Plants Fail to Clear PJM Auction Despite Jump in Payments*, Power (Aug. 24, 2015), http://www.powermag.com/three-of-exelons-nuke-plants-fail-to-clear-pjm-auction-despite-jump-in-payments.

[24] *See* Samuel Brinton and Josh Freed, *When Nuclear Ends: How Nuclear Retirements Might Undermine Clean Power Plan Progress* (Aug. 21, 2015), http://www.nuclearmatters.com/resources/reports-studies/document/when-nuclear-ends-how-nuclear-retirements-might-undermine-clean-power-plan-progress.pdf; IHS Energy, *The Value of US Power Supply Diversity* 28 (July 2014), http://www.nei.org/Master-Document-Folder/Backgrounders/Reports-And-Studies/IHS-Energy-Study-The-Value-of-US-Power-Supply-Dive (follow "Download" hyperlink).

in the same way, as they simply do not generate electricity around the clock. As a result, other fuel technologies, including technologies with significant carbon emissions, would likely be used, contrary to any carbon abatement goal.[25]

If the additional harm to clearing prices that results from preferential payments to demand response causes additional high-capacity and well-functioning nuclear plants to close prematurely, diversity of this nation's fuel and technology portfolio will be threatened. The deleterious impact that would occasion such premature nuclear power plant closures should not be underestimated. Cost-effective power supply will be at risk "because when the market-clearing prices are chronically too low to support new power plants, then lower expected cash flows at existing plants cause retirements before it is economic to do so given costs."[26] The current diverse U.S. power supply reduces U.S. consumer power bills by over $93 billion compared to a

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[25] *See* Samuel Brinton and Josh Freed, *When Nuclear Ends: How Nuclear Retirements Might Undermine Clean Power Plan Progress* 5 (Aug. 21, 2015), http://www.nuclearmatters.com/resources/reports-studies/document/when-nuclear-ends-how-nuclear-retirements-might-undermine-clean-power-plan-progress.pdf (if more nuclear reactors shut down, in any scenario, "U.S. emissions would *go up dramatically* even under compliance with existing renewable portfolio standards") (emphasis in original).

[26] IHS Energy, *The Value of US Power Supply Diversity* 29 (July 2014), http://www.nei.org/Master-Document-Folder/Backgrounders/Reports-And-Studies/IHS-Energy-Study-The-Value-of-US-Power-Supply-Dive (follow "Download" hyperlink).

less diverse supply.[27] Simply stated, the loss of some or several nuclear power plants would lead to a less diverse power supply and, in turn, would likely result in power prices being higher and more volatile, all of which would force a costly adjustment process for this nation's consumers and businesses.

Finally, nuclear plant closures would result in the loss of many high-quality, high-paying jobs and would adversely impact the nation's tax base.[28] Federal and state tax revenues from the U.S. nuclear industry are currently estimated to reach an annual average of $12.1 billion in years 2015 through 2024.[29] If nuclear plants retire prematurely, these revenues will certainly shrink.

The price suppression effects of Order 745 would only compound the market challenges that the nuclear industry is currently facing. Premature nuclear plant closures and the attendant serious problems associated with the loss of that generation can be avoided if wholesale power prices properly reflect market fundamentals. As a result, if demand response is permitted to participate in the wholesale power markets, the rate paid for such resources should reflect market fundamentals and avoid the adverse effects

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[27] *Id.* 5, 9, 34.

[28] *See* Mark Berkman & Dean Murphy, The Brattle Group, *The Nuclear Industry's Contribution to the U.S. Economy* (July 7, 2015), http://www.nuclearmatters.com/resources/reports-studies/document/Nuclear-Matters-Report_Value-of-Nuclear.pdf.

[29] *Id.* 12.

that preferential rates for demand response resources will have on generation resources.

2. Improperly suppressed market prices could limit the efficient deployment of natural gas generation and the development of new natural gas generation facilities

The adverse impacts of improperly suppressed wholesale market prices are by no means limited to the nuclear industry. Our country is blessed with abundant, clean, affordable domestic supplies of natural gas.[30] Yet, the optimal deployment of these resources in the power sector depends, like nuclear power, on wholesale market prices that properly value the services they provide.

As with nuclear power, certain types of natural gas-fired generation have the potential to provide around-the-clock, reliable baseload power to the electric grid. The emissions from these plants are considerably lower

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[30] *See* American Gas Association, *Identifying Key Economic Impacts of Recent Increases in U.S. Natural Gas Production* (May 22, 2012), https://www.aga.org/identifying-key-economic-impacts-recent-increases-us-natural-gas-production-may-22-20node2 (follow "EA 2012-03 Economic Impact of Increase Gas Suppliers May 2012.pdf" hyperlink); U.S. Energy Information Administration, *How much carbon dioxide is produced when different fuels are burned?*, http://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11 (natural gas produces much lower carbon dioxide emissions than other forms of fuel, including coal, oil, and diesel) (last updated June 18, 2015); American Gas Association, *Natural Gas is the Cleanest and Most Efficient Fossil Fuel*, https://www.aga.org/climate-change-and-environmental-analysis (last visited Sept. 3, 2015).

than that of other fossil-fueled power generation like coal, oil, and diesel.[31]

Other types of natural gas-fired generation have the flexibility to start and stop quickly, thereby providing intermediate and peaking services to the electric power grid.[32] With continuing growth expected in intermittent renewable power such as wind and solar, gas-fired resources that can be flexibly dispatched are essential.[33] Gas-fired generation is the key resource available that is relied on to fill the gap when generation from renewable power is unavailable

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[31] *See* U.S. Energy Information Administration, *How much carbon dioxide is produced when different fuels are burned?*, http://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11 (natural gas produces much lower carbon dioxide emissions than other forms of fuel, including coal, oil, and diesel) (last updated June 18, 2015); American Gas Association, *Natural Gas is the Cleanest and Most Efficient Fossil Fuel*, https://www.aga.org/climate-change-and-environmental-analysis ("natural gas is the cleanest and most efficient fossil fuel") (last visited Sept. 3, 2015).

[32] The highest incremental cost generating units are called upon by system operators to run only during times of peak load and are referred to as peaking units. As the name implies, intermediate units are those that operate frequently but only as the load to be served rises to intermediate levels.

[33] *See* John Miller, *Why Expanded Alternative Energy Increases the Need for Natural Gas* (Jan. 29, 2013), http://www.theenergycollective.com/jemillerep/178096/expanded-wind-and-solar-power-increase-need-natural-gas; American Gas Association, *Natural Gas: Rewriting Our Energy Future* 4, https://www.aga.org/natural-gas-rewriting-our-energy-future (follow "Natural Gas: Rewriting Our Energy Future" hyperlink) ("natural gas electricity is widely recognized as a reliable back-up to other renewable sources of energy when the wind does not blow and the sun does not shine").

because the sun is not shining or the wind is not blowing.[34]

The substantial advantages of natural gas in the wholesale power market will not be fully realized if wholesale power prices fail to reflect market fundamentals. The suppression of wholesale energy prices that would result from paying preferential rates to demand response under Order 745 would thus artificially deter the deployment of new gas-fired generation.[35]

When FERC enacted Order 745, it failed to acknowledge these adverse impacts of providing unduly and unreasonably preferential pricing for demand response.[36] As a result, leaving aside the question of whether FERC had the statutory authority to

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[34] *See supra* note 33.

[35] Suppressed rates may also deter investment in infrastructure improvements for more LNG and gas transportation that will help ensure natural gas is available when and where it is needed to operate gas-fired plants. *See* MIT Energy Initiative Analysis, *Report from Growing Concerns, Possible Solutions: The Interdependency of Natural Gas and Electricity Systems* 17 (Apr. 16, 2013), http://mitei.mit.edu/system/files/2014-MITEI-Report-Growing-Concerns-Possible-Solutions.pdf ("Additional pipelines are needed to move gas from new supply centers to traditional demand centers to meet growing demand in the power sector," and lack of adequate infrastructure will lead to "diminishing the economic value of new natural gas reserves."); MIT Energy Institute, Press Release, *Grid Reliability and the Role of Natural Gas* (May 6, 2014), http://mitei.mit.edu/news/grid-reliability-and-role-natural-gas.

[36] *See supra* note 6.

compensate retail customers for their reduced consumption of electricity, FERC's failure to acknowledge and justify Order 745, including taking into account its adverse impact on nuclear and gas-fired generation resources, independently renders the Order unlawful, arbitrary and capricious.

CONCLUSION

If this Court reaches the second question presented, it should hold that Order 745 was unlawful, arbitrary and capricious, and the Court should affirm the D.C. Circuit's judgment on that issue.

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